

Remarks

Claims 1 to 11 are currently pending in the present application, and all claims stand rejected under 35 USC §103 and/or 112.

In respect of the Examiner's rejections, the Applicant provides the following comments.

Rejections under 35 USC § 112

Claims 3, 4, 10 and 11 currently stand as being rejected under 35 USC 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner comments that Claims 3 and 4 do not recite that the milk has been stored at the specified temperature, and that Claims 10 and 11 are confusing since the order of the stages designated by the letters "e" and "f" may be misinterpreted.

In response, the Applicant has amended claims 3 and 4 to specifically teach the storage of the liquid milk, at the defined temperature, prior to step (a). Thus, the temporal relationship of the cold storage with respect to step (a) is established, so that the reader of those claims will now know that the milk 'has been' stored at between 2 to 25°C.

As to claims 10 and 11, Applicant has amended those claims by removing references to steps (e) and (f), so as to simply teach: in claim 10, that the flavor of the manufactured condensed milk is altered after step (b) and before step (c); and in claim 11, that the milk-compatible sweetener is added after step (a).

With these amendments, the Applicant contends that the objections made under 35 U.S.C. 112 have now been overcome. Moreover, no new matter has been added as a result of the claim amendments. See, in particular, the published application paragraph number 41, last half, as to the amendments made to claims 3 and 4; the published application at paragraph number 48 with respect to claim 10; and the published application at paragraph number 49 with respect to the amendments to claim 11.

Rejection under 35 USC 103

Claims 1 to 11 currently stand rejected under 35 USC 103(a) as being unpatentable over US Patent No. 1626818 (hereinafter "Hatmaker") in view of US Patent No. 3643586 (hereinafter "Robinson"), an article entitled MooMilk FAQ (hereinafter "MooMilk"), and in view of an FDA document (21 CFR 131.110 and 131.120 - hereinafter "FDA"). The Applicant respectfully traverses this rejection.

In particular however, the following comments are first directed to the Hatmaker document since the Applicant contends that the cited Hatmaker reference is contrary to the teachings of the present invention, so that it is not be relevant to the teachings of the present invention. Further, the Applicant contends that even if the Hatmaker document is relevant to the present invention, it would not, be modified in the manner suggested by the Examiner with respect to the remaining prior art, because there is no factual basis for such modification. Unless the skilled artisan were to decide to ignore the basic teachings and requirements of Hatmaker, there is no incentive for the skilled artisan to modify the Hatmaker reference in the manner suggested by the Examiner.

First, it is clearly understood by a reading of Hatmaker (and the Examiner has acknowledged this fact) that Hatmaker prefers to use warm milk at a temperature of between 100 to 125 degrees F. Throughout his specification, Hatmaker either specifies this temperature range, or clearly indicates that "fresh warm natural milk" be used. Hatmaker never mentions cooling as a process step. Further, considering that Hatmaker will eventually be adding dried milk powder to the milk, the skilled artisan would normally believe that having the milk at a warm temperature would be beneficial in order to facilitate mixing. This is in accordance with common chemical engineering principles and properties wherein mixing of materials is typically facilitated by heating of the mixture.

Clearly, at lines 6 to 25 of column 1, Hatmaker uses the words "fresh dry milk solids" at lines 10 and 11; and "fresh liquid milk" at lines 17 and 21. He also notes that the remaining portion of the natural milk to which the milk solids will be added should "preferably [be] when the [natural milk] is moderately heated..." (Col. 1, line12 - Emphasis added)

Moreover, the sentence at lines 5 to 12 of column 2 speaks of incorporating freshly dried milk with "fresh warmed natural milk", noting that it is desirable that the "portion of natural milk to which the dried milk is added should be warmed between 100 and 125 degrees Fahrenheit ..." (Emphasis added). Hatmaker warns, however, that while the milk should be heated, it should not be heated in a manner so as to affect its taste or quality.

Further, Hatmaker makes the very clear statement that the fresh liquid milk to which the milk solids are to be added is "preferably [at] a temperature a few degrees higher than it had when it came from the cow ..." (Col. 1, line 24).

Therefore, in view of these comments and teachings by Hatmaker, any skilled practitioner of the dairy arts would read or would have read the Hatmaker reference - in its entirety and in its own context - as teaching the industry to make condensed milk by dividing it into two portions: one of which is dried (using any known process) to produce fresh dry milk solids; and the other of which is warm milk to which the fresh dry milk solids are added. It may be that there is a period of time between when the first portion is dried and it is added to the second portion; but if so, Hatmaker is totally silent as to the condition of that milk during that period of time. As such, no assumptions as to the condition (or temperature) of the milk can be made in that regard.

However, Hatmaker makes numerous comments on the temperature of the milk during mixing. On all occasions, Hatmaker speaks only of heating the milk, or using it at a warm temperature. Never is cooling of the milk, or the use of cooled milk, mentioned, suggested or described.

The Examiner states that the "Applicant recognizes" that heating of the mixture is not essential to the Hatmaker process. The Applicant does not agree with the implication of this statement. Hatmaker teaches the use of warm milk, whether it has been additionally heated or not, and does not teach or require the use of milk at cool temperatures. It is the "recognition" of this fact which is a key feature of the present invention. Namely, in spite of the teachings of Hatmaker, and further, in spite of common chemical engineering teachings and practice, the Applicant has identified a process in which heating of the mixture of milk and dried milk solids, or use of warm milk, is not required prior to the mixing stage. In contrast, the Applicant uses the milk at the common, cool storage temperature without having any need for using warm milkd

and/or the consequential need for heating of the cooled milk.

This modification can provide tremendous advantages in a commercial dairy since the large volumes of stored, cooled milk now do not need to be heated prior to mixing with the dried milk solids. The energy efficiency of this process modification are clearly evident.

In the Action, the Examiner further states that in 1925-26, when Hatmaker was filed, that refrigeration was not readily available, and if it was, Hatmaker would have recognized the value of storing milk, before use, at a refrigeration temperature, as claimed by the Applicant, and as suggested by MooMilk.

First, the Applicant contends that refrigeration equipment was, in fact, readily available in 1925, and that there were numerous practical methods for the cooling of milk for storage. For example, the Examiner is directed to US 221,222 issued November 4, 1879, which clearly provides an industrial refrigeration apparatus.

Mojonnier, in contemporary patent (to Hatmaker) No. 1449688 of March 27, 1923, clearly describes on page 2, line 18, the use of a "double pipe tubular cooler". Further, Beckett in US Patent No. 1357938 of November 9, 1920 provides a milk cooler system and apparatus. Numerous other examples can be found in the patent literature. As such, it is clear that refrigeration equipment, and more importantly, milk cooling equipment was readily available for use in the 1920's, and if Hatmaker had wished to use cool milk, it would have been easily and readily available.

Second, from a reading of these additional documents, it is abundantly clear that the value of having milk stored at refrigeration temperatures was known, and this fact would have been clearly known and understood by Hatmaker.

Thus, if Hatmaker had wished to cool his warm milk prior to mixing with dried milk (for the reasons suggested by the Examiner, or for any other reason), methods were clearly available in 1925-1926 to cool the milk. The fact is, however, Hatmaker clearly prefers to use warm milk (presumably for those engineering reasons which are described hereinabove). For these processing advantages, Hatmaker has specified and taught the use of warm milk. No reference is made to use of milk at any other temperatures, and the Examiner has no basis for assuming otherwise, or for modifying the teachings of Hatmaker in the manner described in the Office

Action.

If Hatmaker had wanted to use cooled milk, for any reason, this was clearly an option available to him. Hatmaker clearly had access to the means of cooling the milk, and clearly knew of the storage advantages of cooled milk. However, Hatmaker specifies warm milk at temperatures of 100 to 125 degrees F in order to facilitate the production of the condensed milk. Contrary to the Examiner's position, therefore, the Applicant contends that the Hatmaker document should be limited to only teaching the mixing of the two raw materials at warm temperatures, for the reasons listed hereinabove, in order to produce condensed milk.

This is a fundamental difference between the teachings of Hatmaker, and the teachings of the present invention. Clearly, the current teachings do not in any way overlap with the teachings of Hatmaker, and in fact, clearly teach away from the teachings of Hatmaker.

The MooMilk document is also cited by the Examiner as teaching the practice of cooling milk for storage stability. However, as already discussed hereinabove, this fact would already have been clearly known and understood by Hatmaker, or any other skilled artisan working in this area in the 1920's. However, Hatmaker still chose to use warm milk, and as previously discussed, there are good engineering process reasons for his choice. Thus, in spite of the fact that Hatmaker had access to cooled, stored milk, and knew of the benefits of having milk stored at these cooled temperatures, he clearly chooses not to use cooled milk, and thus, teaches away from the present invention by requiring warm milk.

As such, absent hindsight to the teachings of the present invention, there is no incentive to modify the teachings of Hatmaker to use cooled milk, in the manner suggested by the Examiner, regardless of the teachings of the MooMilk document.

It is Applicant's position that Hatmaker only teaches the use of warm milk. This would make sense to Hatmaker for a variety of engineering reasons. However, this is clearly contrary to Applicant's teaching. It is acknowledged that MooMilk is cited to show the benefits of cool storage. Again though, refrigeration equipment, and the benefits of cool storage, would have been known, understood and appreciated by Hatmaker. However, instead of using the cool, stored milk, as exemplified in MooMilk, Hatmaker chose to use warm milk. The Examiner's comments and assumptions cannot not vary that position. Hatmaker uses warm milk for various

engineering reasons, and this was done in spite of the fact that cooling equipment was available to him, and that the benefits of cool milk storage were also known. Having established this position, it cannot now be stated by the Examiner that it would have been obvious to mix Hatmaker's milk, with dried milk, at cool storage temperatures, in the manner suggested by the Examiner since the cited prior art does not support this position. The Applicant submits that the Examiner must stay within the four corners of the cited document since there has not been any evidence that Hatmaker's disclosure would be modified by the skilled artisan in the manner suggested by the Examiner. Hatmaker knew, in the 1920's, of the value of cooling the milk, and clearly had the equipment to do so, if he desired. As such, the teachings of the MooMilk document do not provide anything to the knowledge that Hatmaker already had. Hatmaker knew everything that is relevant from the MooMilk document, but chose to ignore those teachings. The Examiner cannot now ignore the explicit teachings and limitations of Hatmaker.

As to the FDA requirement, this is also essentially irrelevant to the present invention since the Hatmaker and MooMilk documents would not lead the skilled artisan to the present invention, regardless of any restriction on the milk fat content. At any milk fat level, the addition of the FDA requirement(s) to the Hatmaker and/or MooMilk document, would still not lead the skilled artisan to the present invention.

Again, in the present invention, the Applicant teaches that mixing of the dried milk powder with liquid milk can be done at cool temperatures, and in particular, at temperatures commonly used for milk storage. This has significant implications for the dairy industry in that it is taught that is no longer necessary to heat the milk to warm temperatures (as described by Hatmaker), in order to prepare condensed milk.

Additionally, with respect to the remaining conditions of Claim 1, even if there was some motivation for the skilled artisan to use cool milk (and this is not acknowledged by the Applicant), it would still be necessary for the skilled artisan to develop the complete methodology taught by the Applicant. This includes, for example, the amount of storage time required for the mixture prior to pasteurization, the levels of milk solids and fat, the benefits of the pasteurization process to the incorporation of the milk solids in the liquid milk, and the like. The skilled artisan would still need to determine appropriate values for all of these process

parameters in order to develop the complete process methodology of the present invention.

This complete methodology is not readily apparent from the prior art, and would not be easily developed by the skilled artisan unless the basic teachings of the present invention were already known (e.g. only with hindsight).

Thus, the Applicant contends that the present invention is clearly inventive over the cited prior art.

Other

It is noted that the Examiner initially refers to the teachings of Robinson, in the Section 103 rejection summary. However, since Robinson was initially cited in the previous Office Action to provide basis for the concept of packaging after processing, the Applicant believes that its addition to the present discussion is now also essentially irrelevant. Thus, the Applicant contends that any addition of Robinson to the currently cited documents would not make the present invention, obvious.

As such, the Applicant contends that the rejection of the claims, and in particular, Claim 1, under 35 USC 103(a) should now be withdrawn.

Further, while Claims 2 to 11 have not been specifically addressed in the current Office Action, the Applicant's comments to the rejections of those claims are already of record in Applicant's correspondence dated January 19, 2007.

Moreover, it is noted that Claims 2 to 11 are all directly or indirectly dependent on Claim 1. Since Claim 1 is allowable, the Applicant contends that Claims 2 to 11 are therefore also allowable.

Summary

The present invention provides a process for the production of condensed milk which avoids the current practice of using water and powdered milk (as described in the application as filed), and also avoids the higher temperature process which has been described by Hatmaker. As such, the process of the present invention provides significant advantages over the current practice of the industry, or the process described by Hatmaker. The Applicant contends that Hatmaker already knew of the possibility of using cooled milk, and clearly had the necessary equipment to cool the milk, if desired. He also had knowledge of the benefits of storing milk at cool temperatures. However, in spite of that, Hatmaker specifically teaches the use of warm milk, and this would make sense to him for obvious engineering reasons.

The MooMilk and FDA documents do not add anything to the Hatmaker document. Hatmaker already knew the relevant teachings from the MooMilk document, but chose to ignore them. Further, the milk fat contents regulations described in the FDA document, are not relevant to the overall inventive process of the present invention.

The Robinson document, or any other document of record, merely describes well known properties of milk and dairy products, and/or well known packaging techniques. However, none of these documents, when combined with Hatmaker, MooMilk and/or the FDA document, would lead the skilled artisan to the present invention since none of the cited documents would suggest or motivate the skilled artisan to operate the Hatmaker process at a lower temperature, as taught, described and claimed in the present application.

As such, the Applicant contends that the present application is allowable, and as such, reconsideration and allowance of the present application at the earliest opportunity are respectfully solicited.

However, should there be any remaining issues, or if any issues require further clarification, the Examiner is requested to contact the undersigned by telephone in order to advance this application to allowance. In particular, the Applicant has identified additional US patent prior art in the present response. It is felt though, that this art is merely background

material and is not directly relevant to the claims of the present application. As such, an Information Disclosure Statement (IDS) has not been filed. However, if the Examiner wishes the documents to be filed in an IDS, he is requested to contact the undersigned by telephone at the earliest opportunity.

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